REMARKS

Claims 2 and 4-12 remain pending in the captioned case. Reconsideration of the present claims is respectfully requested.

Section 103 Rejections

Claims 2, 6, 7, 8, and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,264,795 to Rider (hereinafter "Rider") in view of U.S. Patent No. 4,193,123 to Meinke (hereinafter "Meinke"). Claims 4 and 9-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Rider, Meinke, U.S. Patent No. 5,437,057 to Richley et al. (hereinafter "Richley"), and U.S. Patent No. 6,611,776 to Waters et al. (hereinafter "Waters"). Claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Rider, Meinke, Richley, and U.S. Patent No. 5,914,959 to Marchetto et al. (hereinafter "Marchetto").

To establish a case of *prima facie* obviousness of a claimed invention, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. Second, there must be a reasonable expectation of success. As stated in MPEP 2143.01, the fact that references can be hypothetically combined or modified is not sufficient to establish a *prima facie* case of obviousness. *See In re Mills*, 916 F.2d. 680 (Fed. Cir. 1990). Finally, the prior art references must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d. 981 (CCPA 1974); MPEP 2143.03 (emphasis added). Specifically, "all words in a claim must be considered when judging the patentability of that claim against the prior art." *In re Wilson* 424 F.2d. 1382 (CCPA 1970). Using these standards, Applicants contend that the cited art fails to provide teaching or suggestion for all features of the currently pending claims, and furthermore, cannot be modified to do so. Several distinctive features of the present invention are set forth in more detail below.

Contrary to the allegations set forth in the Office Action, Rider does not disclose a transmitter for generating electrical signals from a serial data stream received from a data source, and a transmitter conductor array for conducting said electrical signals generated by the transmitter to a receiver. Independent claim 2 recites:

> A system for broadband transmission of digital signals between at least one first unit and at least one second unit… wherein said first unit comprises: a data source for generating a serial data stream; a transmitter for generating electrical signals from said serial data stream from said data source…and a transmitter conductor array for conducting said electrical signals generated by said transmitter…

Independent claim 8 recites similar limitations.

Rider discloses an above-ground locator system for determining the location and orientation of concealed underground objects (Rider -- col. 1, lines 18-20; Fig. 5). The locator system described by Rider includes a transmitter 100 for generating an output carrier signal, which can be modulated with digital or analog information (Rider -- Figs. 6-8). The modulated carrier signal is coupled to an underground conductive line 20, and an electromagnetic field impressed with the modulated carrier signal is radiated from the line 20 to a receiver 200, which senses the radiated electromagnetic signal, detects the digital or analog information from the sensed signal, and processes the information for display or other use at the receiver (Rider -- col. 8, lines 4-18; Fig. 5). A detailed embodiment of transmitter 100 is described in cols. 9-13 and shown in Figs. 6-8 of Rider.

As shown in Fig. 6, the transmitter 100 described by Rider includes a frequency synthesizer 150 for generating a carrier signal to be transmitted over line 20, a digitally controlled filter 160 for filtering the carrier signal, and an output circuit 170 for outputting the carrier signal to either a transmitter output connector 180 or an antenna circuit 190 (Rider -- col. 9, lines 38-47). In addition, Rider teaches that transmitter 100 includes a processor circuit 110 for coordinating and controlling various transmitter functions by providing control signals to all of the digitally-controlled components of transmitter 100. For example, Rider notes that processor circuit 110 may provide a digital control signal (DIGITAL DATA) to output circuit 170 for modulating the amplitude of the transmitter's output signal (Rider -- col. 9, lines 40-43).

Statements in the Office Action allege that Rider discloses "a data source for generating a serial data stream (145 of Fig. 6, column 9 lines 34-37); a transmitter (170 of Figs. 6) for generating electrical signals from said serial data stream from said data source… [and] a transmitter conductor array (20 of Fig. 5) for conducting said electrical signals generated by said transmitter" (Office Action -- pp. 3-4). As such, the Office Action statements imply that output circuit 170 (the alleged transmitter) generates electrical signals from the serial input received from input connector 145 (the alleged data source) and that *these electrical signals* are conducted along line 20 (the alleged transmitter conductor array) to the receiver 200 (Office Action -- pp. 3-4). This is simply not true.

As shown in Figs. 6-7 of Rider, the serial input from input connector 145 is supplied to the serial communication interface (SCI) of processor circuit 110. Rider discloses that the serial communication interface (SCI) controls the amplitude of the carrier signal output from transmitter 100 by providing a digital control signal (DIGITAL DATA) to switch 177 of output circuit 170 (see, Reiter, Figs. 7-8). Specifically, and as noted in col. 12, line 67 – col. 13, line 12 of Rider, "the signal DIGITAL DATA from the SCI causes switch 177 either to pass the carrier signal for transmission, in one position of the switch, or couple the signal to ground in the other position… Consequently, the carrier signal from amplifier 176 (the transmitter's carrier signal) is amplitude encoded (turned on and off), in response to the digital signal pattern provided at the output of the SCI in processor circuit 110."

Contrary to the present claims 2 and 8, the electrical signals (DIGITAL DATA) generated from the serial input received from input connector 145 (the alleged data source) are not conducted along line 20 (the alleged transmitter conductor array). Instead of conducting the DIGITAL DATA, Rider generates and conducts a *carrier signal* via transmitter 100. The carrier signal is internally generated by frequency synthesizer 150 and digitally controlled filter 160, and controlled by signals received from processor circuit 110. In particular, Rider indicates that processor circuit 110 provides a reference frequency signal to frequency synthesizer 150 for establishing the frequency (TX FREQ) of the output carrier signal (Rider -- col. 10, lines 30-34). The signal (TX FREQ) generated by frequency synthesizer 150 is a square-wave, which is filtered by digital filter 160 to produce a carrier signal with a relatively pure, sine-wave output (TX SIGNAL) (Rider -- col. 12, lines 19-26). The carrier signal (TX SIGNAL) generated by filter 160 is then supplied to output

circuit 170, where it can be amplitude modulated (via the DIGITAL DATA control signal supplied to switch 177) before the modulated carrier signal is output for transmission (Rider -- col. 12, line 67 – col. 13, line 12).

Contrary to the presently claimed case, Rider simply fails to conduct electrical signals between a transmitter and receiver, wherein said electrical signals are generated from a serial data stream received from a data source. As noted above, the *carrier signal* is the signal which is output from transmitter 100 and conducted along line 20 -- not the DIGITAL DATA signal, which is generated from the serial input received from input connector 145 and used to control switch 177. The *carrier signal* is generated by means of internal frequency synthesis and is not generated from a serial data stream received from a data source. As a consequence, Rider fails to disclose a transmitter for generating electrical signals *from a serial data stream* received from a data source and a transmitter conductor array for conducting *said electrical signals* to a receiver, as claimed.

Rider does not disclose a controller that converts a data rate or data package size of a serial data stream into a desired value of data rate or data package size. Independent claim 2 describes a first unit having a controller that is coupled between a data source and a transmitter for controlling a serial data stream sent from the data source. That controller can convert a data rate or data package size of the serial data stream from the data source into a desired value of data rate or data package size.

Statements in the Office Action admit that "Rider does not expressly disclose converting a data rate or data package size of said data source into a desired value of data rate or data package size" (Office Action -- pg. 4). Applicants appreciate the Examiner's recognition of the lack of teaching within Rider for the data rate/package size conversion recited in claim 2. However, further statements in the Office Action allege that Meinke provides teaching for data rate conversion and that such teaching can be combined with Rider to overcome the deficiencies therein (Office Action -- pg. 4). Applicants respectfully disagree for at least the reasons set forth below.

The teachings of Meinke cannot be combined with those of Rider to overcome the deficiencies therein. Contrary to the allegations set forth in the Office Action, Meinke does not provide teaching for data rate conversion, *per se*, but rather, discloses a fault detection system for use in data rate conversion arrangements (Meinke -- Title, Field of the Invention). The fault detection system disclosed by Meinke improves upon conventional fault detection systems by including a first-in-first-out (FIFO) buffer 4, which is coupled for receiving and buffering a serial data stream before it is converted to analog form by delta modulation decoder 23 (Meinke -- col. 1, lines 24-30; col. 2, lines 20-57; Fig. 1). However, the fault detection system described by Meinke does not perform data rate conversion, as alleged by the Examiner. In fact, Meinke teaches that data bits are read out of the FIFO at the same bit rate they were written into the FIFO (Meinke -- col. 5, lines 25-33).

It appears that the Examiner relies on Meinke simply because the background section of the reference states, "[i]n the digital communication field, data rate converters are frequently used to provide an interface between arrangements which must intercommunicate but which operate at different rates. Digital-to-analog converters often require such data rate conversion between a digital information source and the actual digital-to-analog converter" (Meinke -- col. 1, lines 12-18). While data rate converters may be common in the digital communication field, Appellants contend that such a statement does not provide the motivation necessary to modify the transmitter 100 described by Rider so as to include a controller (or a data rate converter) for converting a data rate or data package size of a serial data stream (i.e., the serial input supplied to input connector 145) into a desired value of data rate or data package size.

The Examiner suggests that Rider provides the motivation necessary for modifying the teachings of Rider in accordance with the present claims. For instance, the Examiner alleges that Rider provides teaching for modulating the serial input from input connector 145 with a default baud rate in column 10, lines 4-45, and column 12, lines 55-63 (Office Action -- pg. 4). The Examiner further alleges that one of ordinary skill in the art would recognize that the data rate of the data source disclosed by Rider changes during the processing through the transmitter (Office Action -- pg. 4). Therefore, the Examiner surmises that it would have been obvious to one skilled in the art to incorporate the data rate conversion taught by Meinke into the "converters" of Rider, in order to

provide an interface between arrangements that operate at different frequencies (Office Action -- pg. 5). The Appellants respectfully disagree and assert that there is no teaching, suggestion or motivation that would enable a skilled artisan to combine the references as proposed.

Contrary to the allegations made in the Office Action, Rider does not provide teaching for modulating the serial input received from input connector 145 (the alleged data source) with a default baud rate, or for changing the data rate of the data source. Although Rider states, "microcontroller 111 programs its internal SCI for the correct data format, baud rate, etc." (Rider -- col. 12, lines 60-61), the baud rate programmed into the SCI is not used to modulate the *serial input* from input connector 145, or to convert a data rate or data package size of the *serial input* received from input connector 145 into a desired data rate or data package size. Instead, the baud rate programmed into the SCI is used to control the rate at which the *carrier signal* is amplitude modulated via switch 177 and the DIGITAL DATA supplied thereto (Rider -- col. 12, line 60 – col. 13, line 12). As noted above, the carrier signal is generated by internal frequency synthesis, and is not generated from a serial data stream received from a data source. Thus, the baud rate programming mentioned in col. 12, lines 60-61 of Rider has nothing to do with the data rate conversion recited in the present claims.

There is simply no teaching, suggestion or motivation to modify the teachings of Rider so as to include a controller, which converts a data rate or data package size of a *serial data stream* into a desired value of data rate or data package size, into transmitter 100. Merely pointing out that data rate conversion is often included between devices that operate at different rates (as briefly mentioned in the background section of Meinke) does not provide the motivation necessary for a skilled artisan to modify the teachings of Rider in accordance with the present claims, especially since Rider fails to provide teaching, suggestion, motivation or even desirability for converting the data rate of a serial data stream.

Rider does not disclose a method for controlling a serial data stream from a data source by storing data from the serial data stream and signaling a desired value of data rate or data package size to said data source or said data transmitter. Independent claim 8 recites a method for controlling a serial data stream. The serial data stream is one that arises

from a data source. The serial data stream is controlled by storing data from the serial data stream and signaling a desired value of data rate or data package size. That signaled desired value of data rate or data package size is sent to either the data source or the data transmitter.

The Office Action alleges the data source is the input connector 145 of Rider (Office Action -- pg. 3). The Office Action further alleges the transmitter is output circuit 170, while the controller is processor circuit 110 of Rider (Office Action -- pg. 3). Using these allegations, in order for Rider to read upon the limitations of claim 8, the processor circuit 110 described by Rider (the alleged controller) must control a serial data stream from input connector 145 (the alleged data source), and must signal a desired value of data rate or data package size to the input connector 145 (the alleged data source) or the output circuit 170 (the alleged transmitter). Appellant contends that Rider fails to do so, for at least the reason set forth below.

As for any control upon input connector 145, that control comes from, for example, a personal computer -- not processor circuit 110 (Rider -- col. 9, lines 31-36). It is impossible for processor circuit 110 to provide any signal to input connector 145, since input connector 145 is not designated as an output connector (Rider -- Fig. 6). As a consequence, Rider cannot provide teaching for signaling a desired value of data rate or data package size to input connector 145 (the alleged data source).

As for any control imparted to output circuit 170 (the alleged transmitter), the exclusive amount of control from processor circuit 110 is to determine whether the carrier signal is to be amplitude modulated and whether the (modulated) carrier signal is to be sent to antenna 190 or connector 180 (Rider -- col. 10, line 3 – col. 12, line 45; Figs. 7-8). Specifically, Rider controls amplitude modulation of the carrier signal by supplying the output from SCI of processor circuit 110 to switch 177 of output circuit 170 (Rider -- col. 11, line 64 – col. 12, line 10; Fig. 7). In order to perform amplitude modulation, processor circuit 110 sends digital data to switch 177 to either output the carrier signal or ground (Rider -- Fig. 8). In addition, processor circuit 110 may also send digital data to output circuit 170 control whether the output from switches 178/179 are sent to antenna 190 or output connector 180 (Rider -- Fig. 8).

Importantly, however, Rider does not describe signaling of a desired value of data rate or data package size to the alleged data transmitter (output circuit 170). The only signaling from the alleged controller (processor circuit 110) is that for controlling a switch for modulating the carrier signal output, and deciding whether that output will be sent to antenna 190 or connector 180 – certainly not to signal a desired value of data rate or data package size, as recited in present claim 8.

For at least the reasons stated above, Appellants assert that Rider fails to provide teaching, suggestion or motivation for many of the limitations recited in independent claims 2 and 8. In addition, Appellants assert that the teachings of Meinke cannot be combined with those of Rider to overcome the deficiencies therein. Thus, Appellants assert that independent claims 2, 8 and all claims dependent thereon are patentably distinct over the teachings of the cited art.

In addition to the independent claims, several of the dependent claims are also considered to be patentably distinct over the cited art. Exemplary limitations are discussed below.

Rider does not disclose a system that is self-learning and adapts itself dynamically to conditions of operation. Dependent claim 7 recites that the system of independent claim 2 is self-learning and adapts itself dynamically to respective conditions of operation.

The Office Action points to column 25, lines 7-40 of Rider as describing this limitation of dependent claim 7 (Office Action -- pg. 5). However, there is no mention of the subterranean detection system of Rider being capable of self-learning or that it can adapt itself dynamically to conditions of operation. In fact, the specified portion of Rider only mentions a microcontroller can coordinate and control functions of the transmitter (Rider -- col. 25, lines 14-15), and that the microcontroller instruction can occur at predetermined intervals (Rider -- col. 25, lines 57-64). Nowhere in Rider is there any feedback arrangement illustrated or that the transmission line or transmitted data can be monitored, and from that monitoring a desired value determined and learned, and that self-learning then applied to dynamically adjust the conditions of the system operation as recited in present claim 7.

Rider does not disclose a decoder coupled to or within a receiver for converting a data rate or data package size of signals received by the receiver into the data rate or data package size generated by the data source. Dependent claim 12 recites that the system of independent claim 2 further comprises a decoder. The decoder is coupled to or included within the receiver for converting a data rate or data package size of the signals received by the receiver into the data rate or data package size generated by the data source.

The Office Action alleges that processor circuit 210 or that device macro select 611 of Rider is equivalent to the decoder recited in claim 12 (Office Action -- pg. 6). A decoder is well-known as something that takes a coded signal and decodes that signal back to its original form. In the context of claim 12, a decoder converts a data rate or data package size of signals received by the receiver back into the original data rate or data package size before they were converted or coded. Specifically, claim 12 describes decoding the data rate or data package size back to the data rate or data package size generated by the data source. The Office Action alleges the data source is input connector 145 of Rider which inputs a serial input onto the alleged controller (processor circuit 110). In order for Rider to meet the requirements of claim 12, the alleged decoder (processor circuit 210 or device macro select 611) must take the data rate or data package size sent to receiver 200 by transmitter 170 and convert or decode that data rate or data package size back to the data rate or data package size of the serial input from connector 145. This contortion of Rider falls entirely outside the teachings of Rider. Not only is the serial input not the claimed data source having a data rate or data package size being converted, but the alleged decoder 210/611 of Rider does not decode back to the serial input since it is the TX SIGNAL frequency generated by synthesizer 150 that is transmitted as the carrier signal -- not the serial input (Rider -- Fig. 6). Absent any transmission of the serial input, it would be impossible to decode back to that serial input at a receiver as recited in present claim 12.

For at least the reasons set forth above, independent claims 2 and 8, as well as claims dependent therefrom, are in condition for allowance.

CONCLUSION

The present response is believed a complete response to the Office Action mailed December 7, 2009. In view of the remarks herein, Applicants assert pending claims 2 and 4-12 are in condition for allowance. If the Examiner has any questions, comments, or suggestions, the undersigned attorney earnestly requests a telephone conference.

No fees are required for filing this amendment; however, the Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment, to Daffer McDaniel, LLP Deposit Account No. 50-3268.

Respectfully submitted,

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